absoluta sunt quam alia, sed aliter spectata sunt magis respectiva: ut universale magis quidem absolutum est quam particulare, quia naturam habet magis simplicem, sed eodem[60] dici potest magis respectivum, quia ab individuis dependet ut existat, etc. Item quaedam interdum sunt vere magis absoluta quam alia, sed nondum tamen[61] omnium maxime: ut si respiciamus individua, species est quid absolutum; si genus, est quid respectivum; inter mensurabilia, extensio est quid absolutum, sed inter extensiones
[383] longi|tudo,[62] etc. Item denique, ut melius intelligatur nos hic rerum cognoscendarum series, non uniuscujusque naturam spectare, de industria causam et aequale inter absoluta numeravimus, quamvis eorum natura vere sit respectiva: nam apud Philosophos quidem causa et effectus sunt correlativa; hic vero si quaeramus qualis sit effectus, oportet prius causam agnoscere,[63] et non contra. Aequalia etiam sibi invicem correspondent, sed quae inaequalia sunt, non agnoscimus nisi per comparationem ad aequalia, et non contra, etc.

6. Notandum secundo paucas esse duntaxat naturas puras et simplices, quas primo et per se, non dependenter ab aliis ullis, sed vel in ipsis experimentis, vel lumine quodam in nobis insito, licet intueri; atque has dicimus diligenter esse observandas: sunt enim eaedem, quas in unaquaque serie maxime simplices appellamus. Caeterae autem omnes non aliter percipi possunt, quam si ex istis deducantur,[64] idque vel immediate et proxime, vel non nisi per duas aut tres aut plures conclusiones diversas; quarum numerus etiam est notandus, ut[65] agnoscamus utrum illae a prima et maxime simplici propositione pluribus vel paucioribus gradibus removeantur. Atque talis est ubique consequentiarum contextus, ex quo nascuntur illae rerum quaerendarum series, ad quas
[384] omnis quaestio est reducenda, ut certa methodo possit examinari. Quia vero non | facile est cunctas recensere, et praeterea, quia non tam memoria retinendae sunt, quam acumine quodam ingenii dignoscendae, quaerendum est aliquid ad ingenia ita formanda, ut illas, quoties opus erit, statim animadvertant; ad quod profecto nihil aptius esse sum expertus, quam si assuescamus ad minima quaeque ex iis, quae jam ante percepimus, cum quadam sagacitate reflectere.

[60] H, A, AT, C, and SGZ: eodem. L: idem.
[61] H, A, AT, and C: sed nondum tamen. SGZ: nondum tamen.
[62] H, A, AT, C, and SGZ: longitudo. L: longitudo [est quid respectivum].
[63] H, C, and SGZ: agnoscere. A and AT: cognoscere.
[64] H, AT, C, and SGZ: deducantur. A: deducuntur.
[65] A, AT, C, and SGZ: ut … pluribus. Missing in H. L replaces 'ut … pluribus' with: [utrum pluribus].

Материал, защищенный авторским правом

things are indeed more absolute than others, yet, from a different point of view, they are more relative,[106] just as the universal is indeed more absolute than the particular, because it has a simpler nature, yet it can be called more relative than it, because it depends on individuals in order to exist, et cetera. Once again, some things are sometimes really more absolute than others, yet they are still not the most absolute of all. Thus, if we are considering individuals, then the species is something absolute, but, if we are considering the genus, then the species is something relative; among things measurable, extension is something absolute, but, among extensions, length is, et cetera. Finally, once again, in order that one better understand that here we are contemplating the series of things to be known and not the nature of each and every one of them, we have deliberately reckoned 'cause' and 'equal' among the absolutes, although their nature is really relative. For, among philosophers, cause and effect are, of course, correlatives. Here, on the other hand, if we inquire as to what the effect is, then we should first recognize the cause, and not vice versa. Equals also mutually correspond to one another, but we can recognize which things are unequal only by comparison with equals, and not vice versa, et cetera.

6. One has to note, second, that there are only a few pure and simple natures which can be intuited first off and per se, independently of any others, but rather either in experiences themselves or by means of some light situated in us.[107] We are saying, in addition, that we have to observe these natures carefully, for they are, in each series, those which we call 'the most simple'. But all the other natures we can perceive only by deducing them from those most simple, and this, either immediately and proximally, or by means of two or three or more different inferences. The number of these inferences also has to be noted, in order that we may recognize whether the conclusions are removed from the primary and most simple proposition by more steps or by fewer. The chain of inferences, out of which arise those series of things to be investigated to which every question has to be reduced, is everywhere such that one could examine it by means of a certain method. Yet, since it is not easy to review all the inferences together, and, moreover, since they have not so much to be retained by the memory as to be distinguished by the acumen of the natural intelligence, as it were, one has to seek something for forming the natural intelligence in such a way that it might immediately notice them whenever there is need. It has been my experience, in fact, that there is no better way of doing this than by accustoming ourselves to reflecting, with a certain sagacity,[108] on the minute aspects of those things which we have already perceived.

[106] The following cases assume familiarity with the *arbor Porphyriana*, a kind of logical scaffold for explicating the relationships between the five predicables, i.e., genus, species, difference, property, and accident, which function as the traditional elements of definition. E.g., 'the human being' (species) is 'a rational (difference) sentient being (genus)' that is 'risible' (property) and 'pedestrian as well as biped' (accident). Cf. Porphyry (232/33–304), *Isagoge to the Categories of Aristotle*, passim. The 'tree of Porphyry' was very popular among the Scholastics, and the *Isagoge* provides the locus classicus for the question about the status of universals, perhaps the one most dominant topic of Scholastic philosophy (cf. 1 a 8–13). Cf. Descartes, *Principles*, pt. I, §§ 59–62, and AT, VII, 140 and 506, as well as AT, X, 516.

[107] Cf. R. 12, § 14.

[108] Cf. R. 10, esp. § 2.

Материал, защищенный авторским правом

7. Notandum denique tertio est, studiorum initia non esse facienda a rerum difficilium investigatione; sed, antequam ad determinatas aliquas quaestiones nos accingamus, prius oportere absque ullo delectu colligere sponte obvias veritates, et sensim postea videre, utrum aliquae aliae ex istis deduci possint, et rursum aliae ex his, atque ita consequenter. Quo deinde facto, attente reflectendum est ad inventas veritates, cogitandumque diligenter, quare unas aliis prius et facilius potuerimus reperire, et quaenam illae sint; ut[66] inde etiam judicemus, quando aliquam determinatam quaestionem aggrediemur, quibusnam aliis inveniendis juvet prius incumbere. Ex. gr., si[67] occurrerit mihi, numerum 6 esse duplum ternarii, quaesiverim deinde senarii duplum, nempe 12; quaesiverim iterum, si lubet, hujus duplum, nempe 24, et hujus, nempe 48, etc.; atque inde deduxerim, ut facile fit, eandem esse proportionem inter 3 et 6, quae est inter 6 et 12, item inter 12 et 24, etc., ac proinde numeros 3, 6, 12, 24, 48, etc., esse continue proportionales. Inde profecto, quamvis haec omnia tam perspicua sint, ut propemodum
[385] puerilia videantur, attente reflectendo intelligo, | qua ratione omnes quaestiones, quae circa proportiones sive habitudines rerum proponi possunt, involvantur, et quo ordine debeant quaeri: quod unum totius scientiae pure[68] Mathematicae summam complectitur.

8. Primum enim animadverto,[69] non difficilius inventum fuisse duplum senarii, quam duplum ternarii; atque pariter in omnibus, inventa proportione inter duas quascumque magnitudines, dari posse alias[70] innumeras, quae eandem inter se habeant[71] proportionem; nec mutari naturam difficultatis, si quaerantur tres, sive quatuor, sive plures ejusmodi, quia scilicet singulae seorsim et nulla habita ratione ad caeteras sunt inveniendae. Adverto deinde, quamvis, datis magnitudinibus 3 et 6, facile invenerim[72] tertiam in continua proportione, nempe 12, non tamen aeque facile datis duabus extremis, nempe 3 et 12, posse mediam inveniri, nempe 6; cujus rei rationem intuenti patet, hic esse aliud difficultatis genus a praecedenti plane diversum: quia, ut medium proportionale inveniatur, oportet simul attendere ad duo extrema et ad proportionem, quae est inter eadem duo, ut nova quaedam ex ejus divisione habeatur; quod valde diversum est ab eo, quod datis duabus magnitudinibus requiritur ad tertiam in continua proportione inveniendam. Pergo etiam et examino, datis magnitudinibus 3 et[73] 24, utrum
[386] aeque facile una ex duabus mediis proportionalibus, nempe 6 et | 12, potuisset[74] inveniri; hicque adhuc aliud difficultatis genus occurrit, prioribus magis involutum: quippe hic, non ad unum tantum vel ad duo, sed ad tria diversa simul est attendendum,

[66] H, AT, C, and SGZ: ut. A: et.
[67] H (?), L, AT, C, and SGZ: si. Missing in A.
[68] H, C, and SGZ: pure. A and AT: purae.
[69] H, C, and SGZ: animadverto. A and AT: adverto.
[70] H, A, AT, and C: alias. Missing in SGZ.
[71] H, C, and SGZ: habeant. A and AT: habent.
[72] A, C, and SGZ: invenerim. H and AT: inveneris. N: heb gevonden.
[73] A, AT, C, and SGZ: 3 et … nempe. Missing in H. L: [3 et 24 quomodo duae mediae proportionales].
[74] H, A, AT, C, and SGZ: potuisset. L: potuissent.

Материал, защищенный авторским правом

7. Finally, one has to note, third, that we are not to begin studies with the investigation of difficult matters. Rather, before we get ready to go up against any specific questions, we should first collect, without any selectivity, those truths at hand of themselves, and then gradually see whether we could deduce some others from them, and still others from these, and so on in logical sequence. Once this has been done, we then have to reflect attentively on the truths discovered and to think carefully about why we were able to find some of them earlier and more easily than others, and which ones these were, in order that, on the basis thereof, we might also judge which things it might help to focus on discovering first when we shall attack some specific question. For example, if it occurs to me that the number 6 is twice the number 3, then I may ask what twice the number 6 is, namely, 12. Once again, I may, if I like, ask what twice 12 is, namely, 24, and what twice 24 is, namely, 48, et cetera. From there, I may deduce, as is easily done, that there is the same proportion between 3 and 6 which there is between 6 and 12, and, once again, between 12 and 24, et cetera, and hence that the numbers 3, 6, 12, 24, 48, et cetera, are continued proportionals. Although all these things are so perspicuous that they might seem almost childish, it is, in fact, on the basis thereof that, by reflecting carefully, I understand what rational aspect is involved in all those questions which can be posed about the proportions or relations of things, and in what order they should be investigated.[109] This one thing encompasses the sum of the entire science of pure mathematics.[110]

8. For I realize, first,[111] that it was no more difficult to discover what twice the number 6 is than twice the number 3; and that, equally in all cases, once a proportion between any two magnitudes has been found, innumerable other magnitudes can also be found which have the same proportion between them; and that the nature of the difficulty does not change if three or four or more of this sort are being sought, namely, because they have to be found as individuals, separately and without having had any relation to the others. I realize, next, that, although, given the magnitudes 3 and 6, I easily found a third magnitude in continued proportion, namely, 12, still, the two extreme terms, namely, 3 and 12, having been given, it was not equally easy to find the mean proportional, namely, 6. The reason for this – as is obvious to one who is intuiting – is that here there is an entirely different kind of difficulty from the preceding one. For, in order to find the mean proportional, one must attend, at the same time, to the two extreme terms and to the proportion between these two, in order to obtain a new proportion from the division of this one.[112] This is very different from the case in which two magnitudes have been given and one is required to find the third one in continued proportion.[113] I also continue and examine whether, had the magnitudes 3 and 24 been given, it would have been equally easy to find one of the two mean proportionals, namely, 6 and 12. And here occurs, once again, yet another kind of difficulty, one even more complicated than the preceding ones, since here one has to attend, of course, not just to one thing or to two things, but to three different ones, at

[109] Cf. *Discourse*, pt. II, § 11.
[110] Cf., e.g., R. 13 ff., where the project is the representation of algebra by means of geometry.
[111] Cf. R. 11, § 5.
[112] The task here is to find an x such that $3{:}x :: x{:}12$.
[113] The task here is to find an x such that $3{:}6 :: 6{:}x$.

Материал, защищенный авторским правом